

**Translation**

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY EXAMINATION REPORT**

(PCT Article 36 and Rule 70)

REC'D PCT/PIU 14 OCT 2004

PCT/JP2002/013854



Applicant's or agent's file reference 139526-927	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/JP2002/013854	International filing date (day/month/year) 27 December 2002 (27.12.2002)	Priority date (day/month/year) 26 April 2002 (26.04.2002)
International Patent Classification (IPC) or national classification and IPC H01L 21/027, G03F 7/16, B05C 11/08		
Applicant  TOKYO ELECTRON LIMITED		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.  
  
☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).  
  
 These annexes consist of a total of 6 sheets.

3. This report contains indications relating to the following items:
  - I ☒ Basis of the report
  - II ☐ Priority
  - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
  - IV ☐ Lack of unity of invention
  - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
  - VI ☐ Certain documents cited
  - VII ☐ Certain defects in the international application
  - VIII ☐ Certain observations on the international application

Date of submission of the demand  13 June 2003 (13.06.2003)	Date of completion of this report  08 March 2004 (08.03.2004)
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/JP2002/013854

## I. Basis of the report

## 1. With regard to the elements of the international application:\*

- ☐ the international application as originally filed
- ☒ the description:  
pages 1-21, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☒ the claims:  
pages 3, 4, 6-9, as originally filed  
pages \_\_\_\_\_, as amended (together with any statement under Article 19  
pages \_\_\_\_\_, filed with the demand  
pages 1, 2, 5, 10, 12, 13 (22-07-03), 11, 14-18, filed with the letter of 13 November 2003 (13.11.2003)
- ☒ the drawings:  
pages 1-12, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the sequence listing part of the description:  
pages \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

## 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

## 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/fig \_\_\_\_\_

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/JP 02/13854

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims	3-18	YES
	Claims	1, 2	NO
Inventive step (IS)	Claims	11-18	YES
	Claims	1-10	NO
Industrial applicability (IA)	Claims	1-18	YES
	Claims		NO

**2. Citations and explanations**

Document 1: US 2002/0043214 A1 (Hiroichi INADA), 18 April 2000

Document 2: JP 10-106932 A (Dainippon Screen Mfg. Co., Ltd.), 24 April 1998

Document 3: JP 10-137665 A (Dainippon Screen Mfg. Co., Ltd.), 26 May 1998

**Claims 1 and 2**

Document 1 discloses a structure wherein a nozzle box (64), which allows the plurality of resist solution supply nozzles (66a-66d) to be kept on stand-by, is provided in the standby position (T) for the resist solution supply nozzles; four recessed portions (64a-64d), which have the same outer shapes as those of the resist solution supply nozzles (66a-66d), are arranged in an arc shape along the outer circumference of the cup (62) in the nozzle box (64); and the plurality of resist solution supply nozzles (66a-66d) are kept in a stand-by state arranged in an arc shape by receiving the resist solution supply nozzles (66a-66d) in said recessed portions (64a-64d).

Consequently, the "recessed portions (64a-64d)" in the nozzle box (64) of the substrate treatment device that is disclosed in document 1 correspond to the "nozzle

holding apertures" in the present invention, and also function as the "walls for regulating the alignment angles" of the nozzles.

In addition, document 1 discloses a feature wherein the resist solution supply nozzles (66) are transported linearly towards the position (P) at the center of the wafer (W); therefore, the nozzles disclosed in document 1 move along the straight lines from the nozzle holding apertures to the rotational center of the rotary holding means.

#### Claims 3-7 and 10

There is not considered to be any technical difficulty in providing a horizontal movement-preventing body, a vertical movement-preventing protrusion, a suction-fixing means for fixing the nozzle, a suction-fixed plate and the like to the substrate treatment device that is disclosed in document 1; therefore, a person skilled in the art could provide these items as desired.

#### Claims 8 and 9

Documents 2 and 3 disclose structures wherein spaces with a solvent atmosphere are formed in the nozzle holding apertures, recessed locations are provided below said spaces and the solvent is made to overflow from said recessed locations.

A person skilled in the art could easily apply the aforementioned structures that are disclosed in documents 2 and 3 in the substrate treatment device that is disclosed in document 1.

#### Claims 11-18

The feature wherein by inserting a positioning pin into a positioning groove, the transport means moves the treatment solution supply nozzles towards the center of

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the substrate to be processed while maintaining a predetermined angle without changing the attitudes of the treatment solution supply nozzles is not disclosed in any of the documents cited in the international search report, and is not obvious to a person skilled in the art.